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ABSTRACT

With so many natural resources in peril today, people need to examine how they excavate an archaeological site on land or a Spanish galleon found buried in an ocean coral reef. In this activity plan for seventh graders, the task involves a letter from the National Oceanographic Association (NOA) announcing the opportunity for university marine archaeologists to submit a proposal for the opportunity to excavate a recent discovery of a Spanish galleon, found at the Key Largo Coral Reef in the National Marine Sanctuary (Florida). NOA requests that the proposals need to include eight specific elements. Each team of four students (marine archaeologist, nautical historian, Spain and U.S. historian (s), and marine ecologist) work at their task so all tasks can be accomplished in the time allotted. The plan discusses use of the learning log, group report, presentation, and what each group member's section of the proposal should include. It offers learning advice; lists extensive resources; discusses evaluation; and poses conclusion and reflection questions. The teacher notes state goals/purpose; address California history/social studies and language arts standards; cite information literacy skills; discuss project length; provide background notes; note materials needed; list resources for the teacher; and suggest interdisciplinary connections. (BT)

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ED 470 342

Schools of California Online Resources for Education (SCORE): Connecting California's Classrooms to the World

Take Only Photos and Leave Only Bubbles: Learn About American History from a Sunken Spanish Galleon

Seventh Grade Activity
by Cathy Rosen

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http://score.rims.k12.ca.us/activity/bubbles/

2002

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Teacher notes

Take Only Photos and Leave Only Bubbles:

Learn About American History from a Sunken Spanish Galleon

Archaeologists have never had it easy. They have battled weather and physical hardships - only then to have to explain what they found...if they found anything at all. But imagine trying to locate artifacts on the bottom of the ocean.

For hundreds of years people have tried to recover lost goods from shipwrecks. Often, in the past, treasure hunters used native people to free dive if the shipwreck was close to shore. In the twentieth century, advancements in technology and diving equipment have allowed archaeologists and treasure hunters to recover a marvelous wealth of treasure and historical knowledge.

This wealth can range from gold necklaces and pieces of eight to seeds that reveal what foods were either eaten or transported. We can also know how people's lives were changed as a result of the trade items that were carried from port to port.

However, in our quest for knowledge and treasure, we have not always collected these gifts

of the past with the greatest of care. With so many of our natural resources in peril today, we do need to examine how we excavate an archaeological site on land or a Spanish galleon found buried in a coral reef.

The Task

NATIONAL OCEANOGRAPHIC ASSOCIATION
2000 Ocean Blvd.
Newport News, Virginia

Department Chair
Department of Marine Archaeology
Any University, USA

The National Oceanographic Association (NOA) announces the opportunity for university marine archaeologists to submit a proposal for the chance to excavate a recent discovery of a Spanish Galleon. The galleon was found at the Key Largo Coral Reef in the National Marine Sanctuary. The shipwreck was located by NOA's Coastal operation which analyzes bottom habitats.

Evidence suggests this is a major find of a Spanish galleon that has never been touched. Furthermore, preliminary observations suggest that this was a flagship carrying a great deal of treasure from the Americas to Spain in the late 16th century.

NOA requests all interested universities submit a proposal for this excavation. The proposal needs to include:

- How the team will carry out the marine excavation.
- What difficulties you anticipate you will encounter.
- A plan for the preservation of objects.
- A list of what precautions and concerns the team will take in excavating in the coral reefs.
- A list of what objects may be found at the site based on documentation from other excavations.
- An explanation of the historical significance of these objects.

- A summary of the history of the conquest of the Americas for the eventual presentation of objects found.
- A list of where the objects were originally from so they may be returned after the exhibition.

All proposals are due on _____. Late proposals will not be accepted.

Sincerely,

Patrice Rosen
Executive Director, NOA

The Process

You will need to assign your university team different roles so that all tasks can be accomplished in the time allotted. However, some of the investigations may require that collaboration take place between the investigators.

You will need a:

Marine Archaeologist:

Your role will be to investigate previous excavations of Spanish galleons or other old shipwrecks. You will also need to find out how the restoration of objects is handled. After researching your job will be to supply diagrams of the proposed excavation and to write this portion of the proposal.

Nautical Historian

You will need to investigate the routes of the Spanish galleons and find the answers to the following questions: What items were shipped to Spain and what items were shipped to the New World? How were the galleons built and navigated? Where were they built? What caused the shipwrecks? You will need to supply your group with maps, illustrations and a summary of this section of the proposal.

Spain and America Historian(s)

You will investigate the motivation behind the Spanish exploration of the Americas and how the Spanish gained control of Mexico and South America in order to answer the following questions: What impact did the Spanish conquest

have on the native peoples? What exchanges occurred between the two cultures? What was the encomienda system? What items would have come from the Americas, and what items would have come from Asia? Why would there have been items from Asia on board the Spanish galleon? You will need to provide illustrations, maps and a written report for this portion of the proposal.

Marine Ecologist

Some of the corals that surround the shipwreck are not endangered; however, there is concern about their continual preservation. Find out what they are and what your team can do to minimize damage. You also need to record what fish are present in the coral reef environment. (Remember NOA and the Florida National marine Sanctuary are watching). You will want to draw illustrations of the excavation site and pictures of the ocean environments. The ecologist can also offer advice on weather conditions. You will write a report for this section of the proposal.

Your Learning Log, Group Report and Presentation

As you explore the various websites or other resources, record the key information on note cards. You will need to record at least ten different references in your proposal. You may also need to pass along the name of a site or other reference to other members of your team who may benefit from the information.

The final group presentation to the NOA representatives should be 10-15 minutes long. The marine archaeologist and marine ecologist will present their findings on one large poster board. The nautical historian and the Spain and America historian(s) will present their findings on a separate large poster board. Your posters should include pictures, maps, charts, graphs and diagrams.

After your presentation you will need to submit a written proposal which includes resource references you used for your findings. Each person in the group will need to write up their section of the proposal.

The Marine Archaeologist will need to cover general information on how the team will excavate the Spanish galleon.

This section of the proposal should include:

- the latitude and longitude of the shipwreck

- the ocean depth of the shipwreck
- the boat and diving team requirements to accomplish the excavation
- the methods of recording the items excavated
- the possible site map using past excavations as a reference
- a list of possible items that will be excavated (consult with the nautical historian)
- how the team will preserve and restore the excavated items
- how the excavation will be presented in the museum exhibit

The Nautical Historian is expected to research all areas which involve the sailing of the Spanish galleons across the Atlantic.

This section of the proposal should include:

- Historical context/intellectual investments
- why these voyages happened at this time
- what scientific changes in navigation allowed this level of exploration
- copies of maps of routes taken by the Spanish galleons
- how the galleons were built, sized, and outfitted
- how they were sailed
- information about the voyage
- information about the crew of the galleons
- the reasons for shipwreck
- a list of items anticipated from excavating the shipwreck
- how the remains of the ship and artifacts will be presented in the museum exhibit

The Spain and America historian will provide the background about Spain's conquest of the Americas, which led to the lucrative Spanish galleon trade in the 16th century.

This section of the proposal needs to include:

- major social, religious and economic changes that had occurred in Europe during the previous 200 years
- background information on the conquest of Mexico and South America
- motives for Spanish exploration
- the treatment of native peoples
- the location of silver and gold mines
- the impact on native populations
- information on cultural changes
- information on cultural exchanges
- how the historical information will be presented in the museum exhibit

The Marine Ecologist will investigate how to excavate the Spanish Galleon in a coral reef.

This section of the proposal needs to include:

- European background, etc.

- the name(s) of the coral reefs located in and around the shipwreck
- the conditions of marine sanctuary that protect a marine environment
- laws allowing for excavation in an underwater sanctuary
- limitations your team will need to observe in order to excavate in a sanctuary
- methods for minimizing damage to the reef during excavation
- general concerns about coral reefs around the world
- types of life the coral reef ecosystem supports in this area
- how the museum exhibit will explain the preservation of the coral reef during the excavation

Learning Advice

As you explore different websites, keep a learning log about them. Stay away from commercial websites that deal with the selling of treasure, as they do not yield helpful information. Not all the information you need is online; you will also have to use other resources such as CD Rom, videos, books and articles.

Resources

The following are General Resources for all team members

Spain in the West Indies
http://www.nationalgeographic.com/silverbank/shsr1.html
Galleons
http://www.nationalgeographic.com/resources/ngo/infocentral/history/galleon.ht
Silver Banks
http://www.nationalgeographic.com/whydah/resources.html
Florida's Underwater Archaeology
http://www.dos.state.fl.us/dhr/bar/uap/
San Pedro
http://dhr.dos.state.fl.us/bar/uap/uwsanped.html
Urca de Lima
http://dhr.dos.state.fl.us/bar/uap/uwurca.html
Saona Island Historical Shipwreck Project
http://www.indiana.edu/~r317doc/dr/saona.html
Columbus Shipwrecks of La Isabela Bay
http://www.indiana.edu/~r317doc/dr/CES-1 .html
Miami Museum of Science-Shipwreck Exhibit
http://www.miamisci.org/shipwreck/exhibit.html
The Spanish Galleon Trade - Saipan's Sunken Treasures

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http://ns.gov.gu/galleon/
Spanish Anchor at the Key Largo Florida Keys National Marine Sanctuary
http://ezinfo.ucs.indiana.edu/~cbeeker/sahome.html

Marine Archaeologist:

Conservation of Artifacts
http://www.miamisci.org/shipwreck/conservation.html
Archaeology
http://www.miamisci.org/shipwreck/archaeology.html
Marine Archaeology and Maritime History
http://www.nos.noaa.gov/ocrm/nmsp/archaeology.html
What is a Nautical Chart?
http://chartmaker.ncd.noaa.gov/ocs/text/text a.html#1.0
San Pedro Underwater Archaeological Preserve
http://www.indiana.edu:80/~scuba/SanPedro.html
About Marine Archaeology
http://www.wbm.ca/users/nfisher/mar_arch.html
La Salle Shipwreck Project
http://www.thc.state.tx.us/belle/Conserv.html

Nautical Historian:

Overview - The Era of the Spanish Galleons
http://www.northlink.com/~hauxe/overview.htm
Navigation
http://www.northlink.com/~hauxe/navigation.htm
The Ships
http://www.northlink.com/~hauxe/ships.htm
Masts and Sails
http://www.northlink.com/~hauxe/rigging.htm
Sailing the Ship
http://www.miamisci.org/shipwreck/sailing.html
Life at Sea
http://www.northlink.com/~hauxe/atsea.htm
Shipbuiding
http://www.northlink.com/~hauxe/atsea.htm
Searching the Seas
http://www.miamisci.org/shipwreck/searching.html
What is a Nautical Chart?
http://metalab.unc.edu/expo/1492.exhibit/d-Ineventing.Amer/inventing.amer.htm

Spain and America Historian(s)

Overview-The Era of the Spanish Galleon
http://www.northlink.com/~hauxe/overview.htm
Treasure
http://www.northlink.com/~hauxe/loot.htm
Gold from the Indies
http://www.umich.edu/~proflame/mirror/agegold1.html
Biscayís Journey from Buenos Aires to Potosi (Read only about Potosi Mines)
http://www.umich.edu/~proflame/mirror/etext/biscay.html
The Great Exchange
http://www.millersv.edu/~columbus/data/art/VIOLA-02.ART
Inventing America: The Gutierrez Map
http://sunsite.unc.edu/expo/1492.exhibit/full images/californ.gif
Middle America
http://sunsite.unc.edu/expo/1492.exhibit/e Eur.claims.Amer/midamer.html
Europe Claims America
http://sunsite.unc.edu/expo/1492.exhibit/e
Eur.claims.Amer/eur.claims.amer.html
The Caribbean
http://sunsite.unc.edu/expo/1492.exhibit/e Eur.claims.Amer/carib.html
Conquest in the Andes
http://sunsite.unc.edu/expo/1492.exhibit/e Eur.claims.Amer/andesconq.html

Marine Ecologist

Florida Keys National Marine Sanctuary
http://www.nos.noaa.gov/ocrm/nmsp/nmsfloridakeys.html
Florida Keys National Marine Sanctuary
http://www.islandfun.com/dive/fknms.htm
Reef Ecosystem
http://www.bev.net/education/SeaWorld/coral_reefs/ecocr.html
Longevity and Causes of Death
http://www.seaworld.org/coral_reefs/deathcr.html
Marine Statistics for USA
http://www.wcmc.org.uk:80/cgi bin/mp_misquery.p
Coral Reef Species Richness
http://www.wri.org/biodiv/b02 koa.html#diversity
Reefs at Risk
http://www.igc.org/wri/indictrs/rr-net.htm

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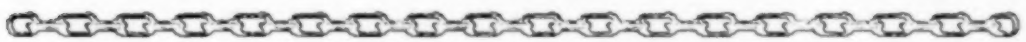
Evaluation

You will be assessed using a rubric that addresses how well you problem solve and access information for your proposal, how well you work together as a team to complete the proposal, and how convincingly you present the proposal. Your final grade will include both individual and group grades on the oral presentation of the proposal, written proposal, and the learning log.

Elements to the scoring rubric:

- The quality of the research
- Completeness of the Learning Log
- Contribution to the group effort
- Thoroughness of the completion of all the role requirements
- Accuracy and neatness of visuals
- Quality of the museum display
- Clearness and logic of the presentation
- Aesthetic appeal of the posters



Conclusion

- The Spanish conquest had a lasting effect on the Americas. The cultures of Europe, and later Africa, were woven into the cultures of the indigenous people of the New World.
- What would be different in the Americas had Spain not conquered this area?
- How were the cultural achievements of the Aztecs and Incas perceived by the Spanish?
- How did Aztec and Inca rulers' control over people's lives compare to that of the Spanish after they took over?
- Why did the Spanish use the encomienda system as a way of governing in the Americas?
- How did this system contribute to the eventual need to bring slaves into the Americas to work?
- How would you have felt as one of the conquered peoples watching the Spanish take your precious artifacts and resources back to Spain?
- Should individual salvage companies be allowed to excavate shipwrecks and claim the treasure? If so, how should they be monitored to protect ocean resources?
- What responsiblity do museums around the world have in handling the treasures that were stolen from the New World by the Spanish?
- What other new frontiers are humans now in the process of exploring?

Reflection

1. What website was the most useful?
2. Would it be possible to fulfill all those roles on the excavation team as an individual? Why or why not?
3. What was the most helpful action of the team or team member in completing the project?
4. Is there anything you or your team would do differently in completing a similar assignment?
5. How would you have done this project without the Internet resources?
6. Did you find a new web site that was not suggested as a resource? What was it?

Notes to the Teacher

Goals/Purpose:

Students will investigate the background and motivation of the Spanish conquest of the New World and its ramifications. They will apply modern research techniques to reach into the past and explore the major method of diffusion during the Renaissance of sea trade and the technology of global exploration.

Standards:

Draft H/SS Standards Grade 7:

- Students describe and compare the evolution selected civilizations in...the Americas, in terms of chronology, location, geography, social structures, form of government, economy, religion, philosophy and thought...the essential similarities and differences in the political, social, economic, and cultural features of Mayan, Incan and Aztec civilizations
- Students trace the evolution of human skills and the understanding of nature and people during the historical developments of the Renaissance and Reformation and compare the aspirations and experiences of men and women to other times and places...with emphasis on the economic foundations of the Renaissance (European interaction with Muslims, increased trade, new economic practices)....
- Students trace the historical developments of the Reformation and compare the aspirations and experiences of men and women to other times and places, with emphasis on the effects of the theological, political, and economic differences that emerged during the Reformation...the influence of religious conflicts on government actions
- Students trace the historical developments of the Scientific Revolution and compare

the interplay among ideas...with emphasis on connections between the Scientific Revolution and new global knowledge...the exchanges of plants, animals, technology, and the cultural and intellectual exchanges among Europe, Africa, and Americas in the 15th and 16th centuries and the major economic and social effects on each continent...

- Students describe and analyze the forces and conditions of political and economic chance and continuity in the sixteenth, seventeenth, and eighteenth centuries (Age of Exploration, the Enlightenment, and the Age of Reason), with emphasis on...the impact of explorations on Aztec and Incan civilizations...
- Students collect, organize, and analyze narrative and statistical data from primary and secondary sources, testing the data for its credibility, authority and authenticity and distinguishing informed from uninformed opinions...

Languge Arts Standards Grade 7:

Reading: Students read grade appropriate material. They describe and connect the essential ideas, arguments, and perspectives of the text, and they relate text structure, organization, and purpose.

Writing: Students write clear, coherent, and focused essays. Writing exhibits awareness of audience and purpose. Essays contain formal introductions, bodies of supporting evidence and conclusions. Students successfully use the stages of writing process. Students write narrative, expository and persuasive text ...[which] demonstrates a command of standard English and...research, organizational and drafting strategies.

Listening and Speaking: Students deliver focused, coherent presentations that convey ideas clearly and relate to the background and interests of the audience.

Information Literacy Skills:

Interpreting history-social science data
Relating historical events, people and eras
Using multiple perspectives
Searching/Researching using a variety of sources and media

Length:

The project should take between two-three weeks depending on Internet access and experience. This unit would be best after studying the early civilizations of the Americas. Team sizes can be enlarged to either fit the number of students in a class or shorten the project time.

Background Notes:

In the middle of the 15th century a magnetic needle was combined with the wind-rose. This invention was essential to the great voyages of discovery by the Spanish and the

Portuguese. Prince Henry the Navigator was interested in exploring Africa for new markets and goods. His instrument-makers adapted an astrolabe for determining their latitude. By measuring the angle between the horizon and either the North Star or the sun, the two pointers gave the sailors the figures (degrees) that they then used to calculate how far north or south they were. At this point, they still did not have accurate means of determining longitude. Sailors used a sand glass (hour glass) and log line to figure out their speed and approximate time at sea.

Prince Henry also improved ocean travel by redesigning the ship. He modeled his caravel sails on the lateen sail of the Arab dhows. These Portuguese advancements in navigation, ship design and sailing aided Christopher Columbus, who was to begin Spain's exploration of the Americas. In order to prevent the Portuguese from claiming some of the territory of this new discovery, the Spanish asked the Pope to grant all of the lands found by Columbus to the Spanish. The pope issued a "bull" to keep these two countries at peace, which became known as the Treaty of Tordesillas. An imaginary line was drawn 370 leagues west of Cape Verdes. He gave all the lands east of this line in the Atlantic to Portugal and all of the land west to Spain.

After Columbus, the Spanish explorers inhabited Mexico, Central America, part of South America and the Caribbean. The Spanish government set up the encomienda system. This system entrusted land to the Europeans who would oversee it, and the indigenous people who would live there. It virtually made slaves out of the natives populations, who had to pan for gold, work in the mines and farm the land. The landowner was required to provide the people with access to the Catholic faith. Therefore, many Church representatives found their way to the Americas to tend to the souls of the people of the Americas. Although the encomienda system was officially abolished in 1542, partially through the efforts of Father Bartolome de Las Casas, this economic system reemerged as the repartimientos and, later on the hacienda, both of which utilized native labor.

In order to continue the supply of gold and silver, the Spaniards forced the indigenous people to work as slaves in mines in Guanajuato and Zacatecas in Mexico. Mining was also done in Peru and Boliva. Potosi, Bolivia, was a center of mining activity. By the end of the 1500s, 350,000 people lived in Potosi. However, the native populations had been devastated both through the dismantling of their cultures, as well as their lack of resistance to the diseases introduced by the Europeans.

Materials:

Students will need poster board and other art materials. It would be helpful to make copies from some of the suggested resource books for students to use.

Resources for the Teacher:

National Geographic Magazine

February 1982, Vol. 161,No.2.

December 1987,Vol.172, No.6.
September 1990, Vol.178, No.3.

Brotherson, Gordon. Image of the New World. London. London: Thames and Hudson, 1979.

This book contains MesoAmericans responses to the conquest in the form of poems and illustrations.

Burkholder, Mark and Lyman Johnson. Colonial Latin America. Oxford: Oxford University Press, 1994.

Fuentes, Carlos. Buried Mirror: Reflections on Spain and the New World. Boston: Houghton Mifflin Company, 1992.

McCauley, David. Ships. Boston: Houghton Mifflin

Additional Student Resources:

Copeland, Peter F. Shipwrecks and Sunken Treasures: Coloring Book. New York: Dover Publications, 1992.

Pickford, Nigel. The Atlas of Ship Wrecks and Treasure. London: Dorling Kindersley, 1994.

Nautical Maps:

Nautical maps of the Florida keys can be obtained at a reasonable cost from either NOAA or dealers in Florida. Check out these sites.

http://chartmaker.ncd.noaa.gov/ocs/text/text-a.html

http://chartmaker.ncd.noaa.gov/ocs/states/florida.htm

Interdisciplinary Connections:

Students can figure out the time it took the Spanish Galleons to sail from one port to another. The science connections are a strong component as students explore the importance of the coral reef ecosystem. Math can also be explored when students either explore navigational techniques or design grids for the archaeological excavation.

Submitted by:

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